CLAIMS:

1. A DNA plasmid-based vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

2. The DNA plasmid-based vaccine according to claim 1 wherein said B cell epitope comprises a portion of human CETP consisting of 5-8 consecutive amino acids of SEQ ID NO:4.

3. The DNA plasmid-based vaccine according to claim 1 wherein said B cell epitope comprises a carboxyl terminal region of CETP, involved in neutral lipid binding or neutral lipid transfer activity.

4. The DNA plasmid-based vaccine according to claim 1 wherein the helper T cell epitope comprises a helper T cell epitope derived from an antigenic peptide selected from the group consisting of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, keyhole limpet hemocyanin, and combinations thereof.

5. The DNA plasmid-based vaccine according to claim 1 wherein the immunogenic polypeptide includes two B cell epitopes of CETP.

6. The DNA plasmid-based vaccine according to claim 5 which includes a DNA segment coding for amino acids 463 through 475 of SEQ ID NO: 4 and a DNA segment coding for amino acids 349 through 367 of SEQ ID NO: 4.

7. The DNA plasmid-based vaccine according to claim 5 which includes a DNA segment coding for amino acids 461 through 476 of SEQ ID NO: 4 and a DNA segment coding for amino acids 349 through 367 of SEQ ID NO. 4.

8. The DNA plasmid-based vaccine according to claim 1 which includes a DNA segment coding for amino acids 2 through 15 of SEQ ID NO: 7

9. The DNA plasmid-based vaccine according to claim 1 comprising the amino acid sequence of SEQ ID NO:7.

10. A DNA plasmid-based vaccine according to claim 1, wherein the promoter is the cytomegalovirus immediate early promoter/enhancer.

11. A DNA plasmid-based vaccine comprising a nucleotide sequence comprising: (a) the immediate early promoter/enhancer region of cytomegalovirus (CMV), operably linked to (b) a structural DNA segment encoding an immunogenic polypeptide and comprising:

(i) a DNA segment encoding amino acids 2 through 15 of SEQ ID NO: 7,

(ii) a DNA segment encoding amino acids 463 through 475 of SEQ ID NO: 4, and

(iii) a DNA segment encoding amino acids 349 through 367 of SEQ ID NO: 4,

which DNA segments (i), (ii) and (iii) are linked in-frame.

12. A DNA plasmid-based vaccine comprising a nucleotide sequence comprising: (a) the immediate early promoter/enhancer region of cytomegalovirus (CMV), operably linked to (b) a structural DNA segment encoding an immunogenic polypeptide and comprising:

(i) a DNA segment encoding amino acids 2 through 15 of SEQ ID NO: 7,

(ii) a DNA segment encoding amino acids 461 through 476 of SEQ ID NO: 4, and

(iii) a DNA segment encoding amino acids 349 through 367 of SEQ ID NO: 4,

which DNA segments (i), (ii) and (iii) are linked in-frame.

13. A DNA plasmid-based vaccine comprising a DNA segment wherein the DNA segment comprises a nucleotide sequence coding for a broad range T cell epitope, the nucleotide sequence of nucleotides 54 through 111 of SEQ ID NO:5, and the nucleotide sequence of 112 through 159 of SEQ ID NO:5

14. The DNA plasmid-based vaccine according to claim 13 wherein the DNA

segment comprises the nucleotide sequence of SEQ ID NO:5.

15. A DNA plasmid-based vaccine comprising a DNA segment wherein the DNA segment comprises a nucleotide sequence encoding a broad range T cell epitope, the nucleotide sequence of nucleotides 1045 through 1101 of SEQ ID NO:3, and nucleotides 1387 through 1425 of SEQ ID NO:3.

16. A DNA plasmid-based vaccine comprising a DNA segment wherein the DNA segment comprises a nucleotide sequence coding for a broad range T cell epitope, the nucleotide sequence of nucleotides 1045 through 1101 of SEQ ID NO:3, and nucleotides 1381 through 1428 of SEQ ID NO:3.

17. A method of elevating the ratio of circulating HDL to circulating LDL, VLDL, or total cholesterol in a human or other animal comprising administering to the human or animal a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

18. The method according to claim 17 wherein said B cell epitope comprises a carboxyl terminal region of CETP involved in neutral lipid binding or neutral lipid transfer activity.

19. The method according to claim 17 wherein the broad range helper T cell epitope is selected from the group consisting of T cell epitopes of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, and keyhole limpet hemocyanin.

20. The method according to claim 17 wherein the immunogenic polypeptide comprises a B cell epitope from the C-terminal 26 amino acids of human CETP and a T cell epitope from tetanus toxoid.

21. The method according to claim 20 wherein the immunogenic peptide comprises two B cell epitopes of human CETP.

22. A method of decreasing the level of endogenous CETP activity in a human or other animal comprising administering to the human or animal a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

23. The method according to claim 22 wherein said B cell epitope comprises a carboxyl terminal region of CETP involved in neutral lipid binding or neutral lipid transfer activity.

24. The method according to claim 22 wherein the broad range helper T cell epitope is selected from the group consisting of T cell epitopes of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, and keyhole limpet hemocyanin.

25. The method according to claim 22 wherein the immunogenic polypeptide comprises a B cell epitope from the C-terminal 26 amino acids of human CETP and a T cell epitope from tetanus toxoid.

26. The method according to claim 25 wherein the immunogenic peptide comprises two B cell epitopes of human CETP.

27. A method for eliciting production of anti-CETP antibodies in a human or animal comprising administering a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter

sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

28. A method of increasing the level of circulating HDL in a human or animal comprising administering to the human or animal a DNA vaccine comprising a nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

29. The method according to claim 28, wherein the helper T cell epitope comprises a helper T cell epitope derived from an antigenic peptide selected from the group consisting of tetanus toxoid, diphtheria toxin, pertussis vaccine, Bacile Calmette-Guerin (BCG), polio vaccine, measles vaccine, mumps vaccine, rubella vaccine, purified protein derivative of tuberculin, keyhole limpet hemocyanin, and combinations thereof.

30. The method according to claim 28, wherein the B cell epitope portion comprises a carboxyl terminal region of human CETP.

31. A method for therapeutically or prophylactically treating cardiovascular disease in a human or other animal in need of treatment thereof comprising administering to said human or other animal a DNA plasmid-based vaccine comprising a DNA segment comprising the nucleotide sequence coding for an immunogenic polypeptide, which nucleotide sequence includes at least one segment coding for a B cell epitope of CETP linked in-frame with at least one segment coding for a broad range helper T cell epitope, which nucleotide sequence is operably linked to a promoter sequence suitable for directing the transcription of the nucleotide sequence in a mammalian cell.

32. The method according to claim 31, wherein the nucleotide sequence coding for an immunogenic polypeptide comprises a DNA sequence of nucleotides 55 through 111 of SEQ ID NO:5 and a DNA sequence of nucleotides 112 through 159 of SEQ ID NO:5

33. The method according to claim 31, wherein the DNA segment comprises the nucleotide sequence of SEQ ID NO:5.

34. The method according to claim 31, wherein the DNA nucleotide sequence coding for an immunogenic polypeptide comprises the DNA sequence of nucleotides 1045 through 1101 of SEQ ID NO:3 and the DNA sequence of nucleotides 1387 through 1425 of SEQ ID NO:3.

35. The method according to claim 31, wherein the DNA nucleotide sequence coding for an immunogenic polypeptide comprises the DNA sequence of nucleotides 1045 through 1101 of SEQ ID NO:3 and the DNA sequence of nucleotides 1381 through 1428 of SEQ ID NO:3.